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Journal of the Amateur Photographic Society of Madras.

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EDITORIAL NOTES.

We call the attention of our members to the Minutes of the Committee Meeting held on the 5th instant. It will be seen that the condition of the Society is not very satisfactory, and that there appears to be little or no prospect of any immediate improvement in it. The Committee have recorded it as their opinion (which has only to be confirmed at the General Meeting) that the Society's operations should be closed after next December. Such being the case, the matter will doubtless receive the earnest consideration of all the members.

It is with deep regret that we record the death of His Highness the First Prince of Travancore. Photography was one of the many accomplishments of the Prince, and he was a member of the Amateur Photographic Society. We tender our hearty sympathy to the bereaved family, and especially to the Prince's brother, His Highness the Eliya Raja of Travancore, who is also a member of the Society.

We have received entry forms with particulars for the forthcoming Aintree Photographic Exhibition and the Blairgowrie International Exhibition. Members who intend to compete can have the necessary information from the Editor.

Mr. MAXIMILIAN TOCH gives the following formula for a good developer for twilight exposures :—

Metol	30 grains.
Hydroquione	30 grains.
Pure dry sulphite of soda ...	$1\frac{1}{2}$ ounces.
Pure dry carbonate of soda ...	$1\frac{1}{2}$ ounces.
Bromide of potassium ...	5 grains.
Water	16 ounces.

The above will be found especially useful for bringing out the black and white effects of stormy evening pictures. Platinum or sepia prints will show off such pictures best.

MR. FAYETTE J. CHUTE, writing in the *Photographic Times*, gives some very useful hints on reducers and intensifiers. The reducers which he comments on are Farmer's Solution, Ceric sulphate, Ammonium persulphate and Cyanide of potassium.

Farmer's solution.—Dissolve a crystal or two of red prussiate of potash in water, so as to obtain a bright yellow solution To one part of a saturated solution of hypo, add three parts of water, and to this add as much of the bright yellow liquid as will give it a pale straw colour. The negative should be thoroughly wetted before being placed in the reducer. It can be used for removing fog, if the fog is on the upper side of the film.

Ceric sulphate.—This reducer removes the silver from the negative in a soluble form, does not produce any stain, and can be kept for a long time without deteriorating. But it has a tendency to reduce the details more rapidly than the high lights.

Ammonium persulphate.—Make a three per cent. solution of the neutral salt. To rapidly stop the action of this reducer on the negative, place the negative in a ten per cent. solution of sulphate of soda before washing.

Cyanide of potassium.—This cannot be recommended, as its action can be gauged only after the negative has been subsequently acted on by the hypo for some time.

AMONG the intensifiers he recommends the following:—

Bleaching process.—The solution of the perchloride of mercury must be saturated and must be acidulated with a few drops of hydrochloric acid. Bleaching must be followed by thorough washing in water which must not be hard. The best darkening agent for use after bleaching is a solution of ferrous oxalate, prepared by mixing one ounce of a saturated solution of ferrous sulphite with six ounces of a saturated solution of potassium oxalate. The solution should be acidulated with oxalic acid. This is the best intensifier as it can be repeated, and as the intensity is increased after each repetition.

Eder's lead intensifier.—Best for line subjects.

Agfa intensifier.—This is the best intensifier. It is a double salt of sulphocyanide of mercury and has to be diluted with nine parts of water before use. If the film is not quite free from acid, stains will be produced. Care should be taken that the negative is also quite free from silver stains, unreduced silver bromide, or hypo. Hard water for washing is to be avoided.

A PHOTOGRAPHIC dealer's shop is not the place where one would look for humour. That life behind the dealer's counter is not entirely devoid of it is proved by the following story. A dealer, who was also asked to supply "hyperfosilite of soda," and "hypercone (for hydroquinone) and metal," was once consulted about a camera by a lady customer. Her camera which had worked very well in the beginning, now only produced spotty negatives. It so happened that the original owner of the camera had some zymotic disease, and on his recovery, his bedroom was fumigated. But the camera which had been kept in the bedroom was removed before the fumigation. Were the spots on the negatives in any way produced by the microbes of the disease?

OUR HOME LETTER.

September 1900.

FROM the transactions of the London Clubs, I observe that one or two gentlemen have recently published methods of very rapid development. Mr. Welford, for example, was very successful on one occasion in demonstrating the development of a negative in about fifteen seconds, the developer being metol, I believe, while just recently Mr. Henderson accomplished a similar result but with a lantern plate in as short a time as five seconds. These marvellously rapid performances have special interest to the experimentalist; and in trade work, involving the production of a large number of negatives under precisely similar conditions, the process will doubtless be found very useful.

But the amateur must not allow his usual slower and surer course to be interfered with by these lightning methods. They are not suitable for varied exposures, nor for the irregular conditions unavoidable where development is only occasionally carried on.

For the benefit of the experimenter, however, I give the formula by which Mr. Henderson obtained a lantern slide of full density in five seconds.

No. 1.

Hydrochinone	20	grains.
Metol	20	"
Adurol	40	"
Sodium sulphite	480	"
Water	8	ozs.

No. 2.

Potassium bromide	10	grains.
Sodium hydrate	120	"
Water	8	ozs.

Equal parts of Nos. 1 and 2 were employed. Naturally, with such a powerful solution, one must time the exposure with the greatest accuracy.

Having introduced the subject of quick development, I am disposed to dwell for a minute or two upon another aspect of the question. Putting on one side the above phenomenal records in development, many amateurs make a great mistake in using their developing solutions in too concentrated a state and in attempting to obtain a perfect negative in a very short time. To this error of procedure, which is done as a regular thing, the prevalence of hard prints, the kind called "soot and whitewash," is directly attributable.

It is, of course, possible to obtain a negative possessing its full share of half-tone by concentrated solutions and rapid development, but it is very much more difficult to do it that way than by taking a dilute developer and a little longer time over the performance. I find, in practice, that one can, with

advantage, dilute the developer much more generously than prescribed in the regular formulae, and that by so doing the image does not flash up as soon as the plate is immersed; there is at the same time less risk of producing marks on account of uneven flow, and time is afforded for a careful examination of the image in order to obtain a negative in which there is no absolutely black shadow, nor yet any absolutely white sky.

From negative processes it is a very short step to those of printing. I have noticed that albumen paper is once more coming into general use, and when one considers the frequent trouble with gelatine chloride it is not at all surprising. One of the chief things in albumen paper is to make it so that it will keep for a reasonable time, for it is exceedingly troublesome to be frequently floating a single sheet or one or two sheets upon the silver bath. The following formula, which must be credited to a German photographer, will be useful to those who wish their sensitized paper to keep for three or four weeks.

The silvered paper is allowed to float for two or three minutes on a bath composed of

Water	1 litre.
Gum arabic	30 grms.
Hydrochloric acid ...	20 ccm.
Tartaric acid	20 grms.
Citric acid	20 „

and then dried. If only a medium durability is desired, the following silver bath may simply be used:

Water	120 ccm.
Silver nitrate	10 grms.
Citric acid	10 „
Alcohol	10 ccm.

The floating must last from two to three minutes. Prints on such paper must be thoroughly washed before toning, for which a soda bath must be used.

Photographic events of any importance are few and far between just at present, but with the end of this month comes the opening of our two great exhibitions, the "Salon" and the "Royal," and these affairs practically inaugurate the winter season, and bring a large number of photographers together from all parts, so that if there is anything new, everybody soon gets to hear of it. The Royal Photographic Society's Exhibition will be a more important event than usual this year, now that the spacious New Gallery in Regent St. has been secured for the purpose, instead of the cramped room in Pall Mall. The photographs will now be sub-divided into several sections, as for example, scientific, pictorial and topographical work, and this will in all likelihood increase the number of exhibits and bring within the doors a larger concourse of people. About these Exhibitions, however, shall I have more to say in my next letter.

A new form of camera, which has aroused much interest here is the "Panoram Kodak." This neat little instrument is on the lines of the larger cameras, but carries a semi-circular film and has a lens in a socket so that at the time of exposure it rotates through the arc of a circle. The larger panoramic cameras cost some £20 or £30 and the films come in at about 15/—for each exposure, so that they could only be used by great enthusiasts or for special scientific purposes. Colonel Stewart did a fine view of St. Peter's at Rome with one of these cameras, and also several splendid panoramas in the Alps.

Now the small instrument recently put upon the market costs but fifty shillings, and in a modest way does capital work. It resembles an ordinary reservoir hand-camera, except that you hold it the broad way. The shutter has two speeds, and when you press the button, hey, presto, the lens sweeps round like the arm of a crane. Celluloid films are used—the ordinary daylight spools. The pictures measure about 7 inches by 2 and have a decidedly pleasing appearance, especially in the case of broad landscapes.

PERCY LUND.

Proceedings of the Society.

Minutes of the Meeting of the Committee of the Madras Amateur Photographic Society, October 5th, 1900.

PRESENT:—

MR. C. E. PHIPPS, *President, in the chair.*

MAJOR J. L. VAN-GEYZEL, *Vice-President.*

MR. E. W. STONEY.

MR. A. E. LAWSON, *Honorary Treasurer.*

MRS. LEET PALK, *Honorary Secretary.*

1. The President read the circular notice that had been issued to all members with the last number of the Journal, and also six letters that had been received from members replying to it.

2. After considerable discussion, the Committee decided to record it as their opinion that, in view of the apparent lack of interest in Photography now taken by the members, and of the consequent difficulties that existed in making the meetings of the Society so successful as they should be, it was advisable to wind up and close the Society's operations from the 31st December next. A discussion took place as to whether it would be possible or desirable to seek amalgamation in any form with the Photographic Society of India, either *en masse*, or individually, and the Committee considered that no action of theirs, if taken, could secure the election *en masse* of the Madras Society as a part of the Society of India, as such would in any case resolve itself into a question of the wish or otherwise of individuals to join the latter Society, and it did not seem to them therefore possible to take any steps in the matter as a body. It will, of course, be open to any member to join either at once or at any time, should he wish to do so, the older and larger Society.

3. The Honorary Treasurer reported that there was to the credit of the Society at date a sum of Rs. 909-1-0. Outstanding liabilities amounted, irrespective of the Printer's bill, and one or two other small items, the exact amount of which was not known, to Rs. 116, and that there would probably, when, or if the Society were wound up as proposed, be a balance to credit of say Rs. 600 to 700.

4. Five suggestions as below were made as to how this money should be disposed of:—

(*a*) That the money shall be divided up amongst the members;

(b) That it shall be handed over to The Fine Arts Society of Madras;

(c) That it shall be handed over to the Madras Friend-in-Need Society;

(d) That it shall be divided between the Fine Arts and Friend-in-Need Societies;

(e) That a set of prizes, as was done last year, shall be offered for competition at the next Exhibition of the Fine Arts Society in 1901, and that the balance remaining shall be handed over to the Friend-in-Need Society.

5. The above Proceedings of the Committee will be printed in the October number of the Journal for the information of members, and the matter will be brought up for final decision at a general meeting to be held on the second Friday of November.

C. E. PHIPPS, *Chairman.*

The Committee cannot but regret the decline in the interest taken by the members in Photography and in the work of the Society. For many months past it has never been possible to secure the attendance of more than a handful of members at the monthly meetings, and on more than one occasion it has happened that no meeting at all could be held owing to the fact that only one or two members, in addition to the Honorary Secretary, have put in an appearance. Under these circumstances, it seems useless to attempt further and keep the Society together as a going concern, and a proposal that it shall be wound up, and shall terminate its existence, is being made.

The Committee feel that at the same time the Society has efficiently filled a want that, for the period of its existence has been a real one, and in discontinuing its labours, not through fault or failure of its own, or of its members, but because that want has ceased, it can do so with a light heart, and a clear conscience.

The Committee further desire to place upon record their cordial appreciation of the trouble and interest in the Society's welfare that has been taken by its Honorary Secretary, and they are assured that they only echo the wishes of the members at large, in according their most hearty thanks to Mrs. Leet Palk, for the hard and very good work that she has so kindly done since she has been good enough to undertake the Secretarial duties.

Report on the Hot-weather work.

Amateur Photographic Society.

The last meeting of the Society took place on March 2nd 1900, when Major Van-Geyzel gave a Demonstration on "The Camera."

Mr. K. Ramunni Menon undertook the duties of Editor to the Society in March 1900 on a monthly salary of Rs. 30.

Messrs. Del Tufo have printed all the pictures for the Journal.

Messrs. Graves, Cookson and Co. have continued as Publishers and Printers of the Journal.

The Society has increased by 3 new members, *i. e.*, Mrs. Inglis, H. H. The Rajah of Kallikote, Attugade, and A. M. Walter, Esq. (Journal only).

Two members have retired—Mr. Carry and Mr. Ramsden.

Total—42 members.

The balance of funds to the credit of the Society to date amounts to Rs. 901-1-0.

During 6 months, one member sent a picture for the Monthly Competition. There were no competitors for the Half-yearly Competition.

OUR ILLUSTRATIONS.

Mr. E. W. Stoney, to whom we are indebted for our illustrations this month, has kindly sent us the following:—

To those interested in Indian Architecture, especially temples, the writer can strongly recommend a visit to the temples of Tadpatri situated on the banks of the Pennar River, about $2\frac{1}{2}$ miles from the Tadpatri Station, Madras Railway.

These temples are said to have been built about 400 years ago by Ramalingam Nayudu, a subordinate of the Vizianagar kings, and his grandson Timma Nayudu and are elaborately decorated with sculptures executed in hard trap representing the adventures of Krïshna and Rama.

The work is beautifully sharp and well executed, as may be judged by the accompanying photographs, the negatives of which were taken by the writer some years ago.

The unfinished gateway is particularly fine, the ornamentation being beautiful both in design and execution.

A day in the cold weather with a camera could be most pleasantly spent at these temples.

Our Contemporaries.

The Photographic Journal, *August*:—Stops, Lenses, and Perspective.

The Journal of the Camera Club, *September*—
Life on Board a Battleship; The Autocar of To-day; Notes on a recent Tour in India and Nepal; Japan; Frontier Warfare; The Siege of Kimberley.

The Photogram, *September*:—
Softness and Sunshine in Photography; An Enquiry into the Early History of Photography (*continued*); Auto-glyphic Engraving; *Cloud and Sky Negatives*; A promising Printing Process.

Der Amateur Photograph, *September*:—
Stand Entwicklung; Gedorrte Trockenplatten; Das Recht am eigenen Bilde; Die Herstellung guter Gelbscheiben.

The Photographic Times, *August*:—
The Arm, the Mouth and the Nose in Portraiture; Reducing and Intensifying; Twilight Exposures; Kromskop Colour Photography; Photopraphy of the Stage.

Journal of the Photographic Society of India, *Septr*:—
The Valley of Cashmere; On the Fading of Gelatine Negatives.

The Photo-Miniature, *July*:—
Bromide Printing and Enlarging.

The Amateur Photographer, *August—September*:—
Introduction to Pictorial Photography (*continued*); Venus Paper; The Evolution of a Figure Study; Vignetting; War and the Camera—with a Telephoto Lens; Kachin Developer with Carbonates;

Temples of Tadpatri 2. By Mr. E. W. STONEY.

The Thornton Film; Some Useful Stains for Photographers; Broken Negatives; A Simple Automatic Rocker and How to Make it; Toning Lantern Slides by Substitution; Carbon Printing (Single Tansfer) for Beginners.

THE AUSTRALIAN PHOTOGRAPHIC JOURNAL, *August*:—
Errors in Exposure and Development and How to recognise them.

THE PRACTICAL JUNIOR PHOTOGRAPHER, *September*:—
Home-made Bromide Paper; A Plate Rocker for the Dark-room; Spotting Negatives and Prints.

WILSON'S PHOTOGRAPHIC MAGAZINE, *August*:—
In Natural Colours; Photographing Paintings; Works of Art—How to See and Enjoy them; Sitters and the part they play in Photography; Does backing slow the Plate? Copying; Coloured Transparencies by Absorption.

THE AUSTRALASIAN PHOTOGRAPHIC JOURNAL, *August*:—
Doctoring and Earing for Negatives; Mountants; Thierophotography; Simultaneous Development and Fixation.

THE CAMERA OBSCURA, *July*:—
Intensification with Mercury; A Note on the use of Pinholes as Stops; On the Acid-blast Method of Etching.

NOTES.

Flash-light powder—

Magnesium and aluminium	...	10 parts.
Potassium chlorate	...	5 ,,
Potassium permanganate	...	1 ,,

Powder separately and then mix for use without pressure. This produces a minimum amount of smoke. —*Phot. Times*.

Blueblack tone in Platinotypes—Mr. J. E. Watson recommends substituting an oxalate of ammonia bath, consisting of two ounces of oxalate of ammonia in 40 ounces of water, for the third and last acid bath generally used in clearing platinotypes. This secures a blueblack tone, and the last traces of iron are completely removed from the print.—*Phot. Miniature*.

EXTRACTS.

*Telephotography.**

BY THE REV. FRANK S. DOBBINS.

I am somewhat surprised at my own audacity in replying favorably to the invitation of your committee to address you this evening. An amateur who, up to eighteen months ago, had not touched plate or developer, and who has only odd moments to devote to the fascinations of photography, and who is, therefore, only a tyro in things photographic, should hardly speak to you who are so experienced and so wise. However, it is with the thought that perhaps you have not experimented in this single direction that I venture to speak to you on telephotography and to bring to you some of the rude and crude results of my own experiments and observations.

I shall not at this time speak concerning the advantages of telephotography in detail. Suffice it to say that with the telephoto attachment one can photograph rather more of detail than the eye can see, and on about the same scale as the eye views things. All of the advantages of long focus lenses are apparent in telephotography. The telephoto attachment gives to its owner the equivalent of a whole battery of lenses, running from say 21 inches to 56 inches in focal length.

As to the apparatus. I use a Bausch and Lomb Zeiss Convertible Anastigmatic lens, made up of an $11\frac{1}{2}$ and a 14 inch lens, the combination having a focal length of 7 inches. With this is a telephoto attachment having set in it a negative lens of $3\frac{1}{2}$ inches focal length. The Bausch & Lomb Company adjusted the lenses and the attachment mechanically and optically. I use either one of two cameras, a Premo Long Focus Reversible Back Camera for a $6\frac{1}{2}$ x $8\frac{1}{2}$-inch plate, having a bellows length of 29 inches, or a Long Focus Montauk for a 4 x 5-inch plate with a bellows length of $19\frac{1}{2}$ inches, to which may be fixed a little box given an added bellows length of 5 inches. As rigidity is absolutely necessary I attach a rod, with a slot in it of $3\frac{1}{2}$ inches (to allow of all needed changes for variations of enlargements), running from the top of the lens-board front to the top of the camera box, held in place by set screws. If I use the larger camera, I slip a block or a bit of wood under the attachment.

There is a very simple rule for finding the approximate length of bellows required by the telephoto attachment. The negative lens is usually one-half the focal length of the positives. Multiply the focal length of the negative lens by one less than the number of magnifications desired, and the result is the bellows length required approximately. Thus seven times $3\frac{1}{2}$ inches gives $24\frac{1}{2}$ inches bellows length needed with positives of 7 inches and a negative of $3\frac{1}{2}$ inches for an eightfold magnification. On the baseboard of my camera I have marked off the points to indicate the varying bellows length required for the different magnifications, eightfold, sevenfold, etc. "Magnification" means *linear* magnification, so many diameters greater than the original image made with the positives of the combination only.

As to the comparative size of the telephoto arrangement and a camera with positives only, Dallmeyer's rule, confirmed by calculations made for me by the Bausch & Lomb Company, show this rather remarkable state of things. This little box of mine, with this tiny telephoto attachment (the attachments cost from $16 to $24), gives precisely the same results, for an eightfold magnification, that would be accomplished had I a camera 56 inches in bellows length, with a pair of lenses 9 inches in diameter mounted in a barrel (or keg, literally) 12 inches long. The rule to find the equivalent of any magnification is simply to multiply the focal length of the positives of the combination by the number of magnifications: thus, eight times 7 gives 56. If I make simply a sixfold magnification with a bellows length of about 17 inches, it is the equivalent of an ordinary lens of 42 inches focal length.

I may remark, in passing, that I have hitherto yielded to the desire to see what the telephoto lens will do, and so have almost always strained the lens to its utmost. This is like a novice, but unwise. One ought to be content with a sixfold magnification, for the results are better in every way, and the exposure is so much lessened. I shall mend my ways in this respect. Some of the illustrations I bring you this evening would have been much better had I but had the good sense to exercise some restraint in this direction before. Moreover, nine times out of ten the 4 x 5 plate is preferable to a large one, for certain reasons.

*A paper read before the Photographic Society of Philadelphia, and reported in its *Journal*, April 1900.

I put my 4 x 5 camera, the box addition, the telephoto attachment, the shutter, lenses, focusing cloth, focusing glass, six double holders with a dozen plates, all into a case. The whole measures 18 x 8 x 7 inches and weighs just 13½ pounds. So it is not bulky or weighty. I use a good, substantial tripod. When possible I get behind a tree or a building, out of the breeze; the wind's vibrations must be guarded against. In setting the camera I rack out the bellows to the point of the magnification desired, and then focus with the telephoto adjusting screw.

I use isochromatic plates almost altogether. I notice that Dallmeyer, Spitta, Marriage and others who have written on telephoto work all use isochromatic plates. A color-screen is almost necessary for distance work, to cut out haze, and the consequent exposure is so very much less with the isochromatic plates than with others that one finds after a little that he must depend on these almost always.

As to exposure. This is the one great problem which plagued me. I have worked away at it and with some results which I give to you in printed form. Let me say that the tables are tentative merely. I expect with larger experience to revise them. Yet they represent the results of my experimenting up to this time. The rule usually given is that the exposure should be the normal exposure with the ordinary lens multiplied by the square of the magnification.

I have found this to be the maximum exposure.

SUGGESTED TABLES OF RATIOS OF EXPOSURES:

For use with Telephoto Combination (positive and negative lenses). Multiply the normal exposure with ordinary photographic lens for an object in the shadow by the figures given. (Usually one determines the normal exposure with a Wynne Exposure Meter by holding it in the shadow of the body.)

I. For objects 1,000 feet distant or less, using no color-screen;

Magnification	8	7	6	5
Dark objects in shadow	64	49	36	25
Dark objects in good light / Bright objects in shadow ...	48	36	27	18
Bright objects in good light ...	32	24	18	12
Bright objects in intense light ...	16	12	10	8

II. For objects more than 1,000 feet distant, using a color-screen and isochromatic plates (if no screen is used, the exposure will be, of course, but one-fourth the length of time when the screen is used):

Magnification	8	7	6	5
Dark objects in shadow	64	49	36	25
Dark objects in good light / Bright objects in shadow ..	50	38	28	20
Bright objects in good light ...	36	28	21	15
Bright objects in intense light ..	22	18	14	10

The variations are not so great as they seem, being equal to that from one second to three-fourths of a second, to one-half of a second, or to one quarter of a second.

As to the development of plates exposed in connection with the telephoto attachment, I notice that it must be carried much further than with ordinary exposures. I notice, also, that the development proceeds much more slowly. I do not know the reason of this.

Now, let me give you, with no end of apologies for the lack of photographic finish in them, a few illustrations of telephotographs.—*Wilson's Photographic Magazine.*

Carbon Printing (Single Transfer) for Beginners.

BY "MACALLUM MORE."

Why carbon printing is not used by the general rank and file of amateurs gives cause for astonishment. The possibilities of the process and its extreme simplicity, together with the very beautiful results produced, make it one of the most charming of printing methods. The chemical principle on which the carbon process is based, is the rendering of gelatine in combination with a finely-powdered pigment, and sensitised with bi-chromate of potash, insoluble in water, after being acted upon by light.

It is possible for the amateur to make his own printing paper, or "carbon tissue," as it is called; but this is not to be recommended, particularly for beginners, as it can be purchased much better than it can be made at home, either sensitive or unsensitive, from the Autotype Company, New Oxford Street, W. C., or Messrs. Elliott and Sons, Barnet, Herts. The tissue is obtainable in a variety of shades—black, brown, purple, sepia, red chalk blue, sea-green, etc. The beginner is advised to try sepia. The only apparatus absolutely necessary—most amateurs will have already in their outfit—is three dishes of a larger size than the prints, and a squeegee.

Having procured, say, sepia tissue—unsensitive by preference, as the sensitive paper only keeps from seven to ten days—a sheet or two can then be sensitised just as one is ready to use it. The first step in the operation is to make up a 5 per cent. solution of bi chromate of potash, which, can be purchased at 1d. per ounce. A pennyworth will make twenty ounces of solution. This will last a long time. It keeps well. Add a little ammonia—the exact quantity is immaterial. The tissue is floated on this, face downwards, for one minute. Take care to avoid air-bubbles, and hang up to dry in a dark room, or one lit by yellow or gas light. Drying is complete in about five hours, when the tissue is ready for printing.

The negative should be of good density and gradation, and fairly "plucky," with plenty of detail. In printing it is necessary to use what is known as a "safe edge" to prevent the tissue breaking up in development. This is made by gumming a strip of black paper, such as lantern binding strips, round the edge of the glass side of the negative, or it can be done by cutting a mask out of a piece of thin opaque paper—yellow, red, or black—and placing between the negative and the tissue when printing. This latter method gives the opportunity of improving the proportions of the picture if necessary, by allowing more margin at one side than another. The sensitised carbon tissue should be handled in very subdued daylight or gaslight, as it is more sensitive than P.O.P.

The tissue being now placed with the negative in the printing frame, it may be explained that the action of light produces no visible effect on the paper. The best way to judge the printing, therefore, is by taking a similar negative and printing simultaneously strips of P.O.P. When the silver paper has printed to about the depth that the finished print would be, without allowing for reduction in toning, the tissue may be regarded as sufficiently printed. The printing being completed, next comes the development. As it is impossible to develop the tissue from the printed side, it is necessary to transfer to another support and develop from the back. This is a very simple matter. The tissue is placed in one of the dishes containing cold water until just limp. A piece of

single transfer paper, which should be half an inch larger each way than the tissue to be transferred, is placed in the cold water, and the two immediately brought into contact, face to face, lifted out, and laid on a flat board or piece of glass, the tissue being uppermost. The excess of water may be removed with the squeegee. Several strokes with moderate pressure given in each direction will be sufficient. The adherent tissue and transfer are now placed between blotting-paper, on which is a weight, for, say, fifteen minutes, though if rough or thick transfer paper is used, thirty or forty minutes will do no harm; after which they are removed to a dish of hot water, say, 100 deg. to 125 deg. Fahr.—about as hot as you can comfortably bear with the hands. As soon as the warm water has softened the gelatine, which is known by its beginning to ooze out from the edges of the picture, strip off the paper upon which the pigmented gelatine was spread. It should come quite easily, and when peeled off entirely should be thrown away. The transfer paper with the printed film is now reversed. The side that was previously bottom on the original paper support is now on the top and ready for developing. This is done by gently laving with the hot water. The picture will soon appear when the unexposed parts begin to dissolve away.

The usual conditions of exposure and development are reversed in the carbon process. If the carbon print has been under-exposed, it will come up quickly when subjected to the wa m water; colder water should in that case be used. If over-exposed, the development will be prolonged, and the water should be hotter.

One of the advantages of carbon printing is that development is more completely under the control of the worker than in any other developing process, while local development may be effected with judicious working. The washing with the hot water is continued till the picture is clear and bright and the desired result obtained. As the film is very delicate, be careful not to touch it with the fingers. Development is stopped by placing it in a dish of cold water, and after a minute of two it should be passed into a 5 per cent. alum bath, which will thoroughly clear the print of the bi-chromate. It should remain there until all yellow stain has disappeared, when a final rinse in cold water to remove the alum completes the operation, and the picture may be hung up to dry. It will thus be observed that no prolonged washing is necessary, as is the case with those processes in which hypo is employed, and the print is absolutely permanent.

The only drawback of the single transfer method is that the image is reversed—that is, a tree that was on the right side of the picture when taken will appear on the left side. For landscapes and pictorial work generally this will be of little importance, but if it is desired to have things the right way it is essential to work from a reversed negative or use the double transfer method, unless, of course, one use films which can be printed from either side, a very important advantage which they possess. A word as to the expense of the process. A dozen half-plate pieces of carbon tissue, any colour, sensitive or unsensitive, cost ten pence, and a dozen single transfer supports, 7 by 5, fourpence. It will thus be seen that a dozen prints cost the small sum of one shilling and twopence. As no chemicals are required carbon printing is as economical as most of the other printing processes. —*The Amateur Photographer.*

Halation.

By Harold Holcroft, M. A., F. C. S.

In this article I will consider first, what constitutes halation; next, how it may be minimised or prevented; and lastly, if it already exists in the negative, how it may be cured.

In passing it may be noted that the old proverb "Prevention is better than cure" applies here with particular force.

The word halation, as popularly used, seems, like charity, to cover a multitude of sins, or at least many of various kinds. After some natural hesitation I venture on a definition to cover the whole, viz.: "Halation is a term appied to a defect in the photographic image that is caused during a camera exposure, either by light which properly belongs to one part of the image reaching other parts, or by the illumination of an impure atmosphere."

Halation varies very much in amount with the relative contrast of various parts of the image, but is perhaps always present in some degree.

Of the varieties of halation, the first is caused by lateral spreading of light in the film: each particle of silver bromide when illuminated radiates light in all directions, and those rays which proceed laterally and fall upon neighbouring particles of silver bromide must produce a certain amount of reduction; but the effect cannot spread very far, owing to the opacity of the film and probably is at its worst in copying line subjects.

The only remedy appears to be in the direction of increasing the opacity of the film or staining it with non-actinic dye.

A second cause of halation is light reflected from the bellows or sides of the camera, owing to the fact that the lens covers a larger area than that of the sensitive film. The effect is very noticeable in the photography of interiors when a bright window is just out of the field of view on the focussing screen: the light from the window will be plainly seen, reflected from the said of the camera upon the darker image on the screen.

The remedies consist in careful attention to the blackening of the inside of the camera, and, if the form of the camera allows, in the use of internal screens, which cut off all reflected light; and also in placing upon the lens hood, a rectangular opening which can be adjusted to limit the size of the picture to that of the focussing screen.

The stray light which is dispersed over the picture by dirty lenses or blackening worn off the lens mounts comes under this section. The remedies are obvious.

The third cause of halation is especially noticed when the air is misty or dusty; the light which is reflected from the particles in the air impairs the depth of the shadows. This form of halation is not always a defect, as shafts of light can be used for pictorial purposes, and the atmospheric effect of mist is often a very valuable aid. By the use of yellow screens and orthochromatic plates the action of mist can be controlled to a considerable extent.

In all the foregoing varieties of halation the action takes place upon the surface of the film, and in theory a careful rubbing with the aid of alcohol, just sufficient to remove the halation and no more, should leave the image intact.

The last and most important cause of halation, however, is the reflection of the light which passes through the sensitive film, from the back internal surface of the glass support.

The accompanying diagram* illustrates the simple case of a pencil of rays of light falling upon a sensitive film, and the paths of some of the reflected rays of that portion of the light which has penetrated the film. M is a section of the film; N is a section of the glass plate; XO is a vertical pencil of rays of light falling on O. Part of the pencil XO is absorbed by the film, and does work in forming the image; part also penetrates the film; and O may be regarded as the centre of emission of rays in all directions.

When a ray of light passing from glass to air strikes the surface, which is common to both perpendicularly, the ray is almost wholly transmitted, very little is reflected; but as the angle at which the ray falls differs from the normal, so does the amount of light reflected increase, and that transmitted decrease, until at a certain angle dependent upon the refractive index, and called "the critical angle," the light is wholly reflected. Thus, in the figure OA will be transmitted far more completely than OE.

As this takes place in all directions round O, the effect of the reflected rays will be to produce a ring of halation round O which will be slight at the centre near O, and also vignetted away at the circumference, and densest at some intermediate point.

It is to be noted that this variety of halation takes place entirely on the lower surface of the sensitive film, and is clearly visible at the back of the plate before fixing.

A further inspection of the diagram will show the different plans of attack for preventing or minimising the evil.

There are at least five principles we may adopt.

First, we may make the senstive film as opaque as possible, so that there shall be little or no light transmitted. This is done by the addition of iodides to the emulsion, or by increasing the thickness of the film, or by superimposing several layers of film, as in the "Sandell" plates. Or we may dye the film with picric acid or other substances, or we may have an opaque substratum as in Oakley's antihalation plates, which is cleared away during development or fixing

As a second principle we may abolish the glass plate entirely and use a paper negative, stripping or otherwise, or we may reduce the halation by using thin celluloid as a support, which very much limits the spreading of the halation.

As a third principle we can reduce the excessive contrast of light and shade falling upon the film, by covering up the high lights for a portion of the time of exposure. In taking difficult interiors when a window cannot be managed in any other way, a cloth is hung outside the building over the window for part of the exposure. There is also another way of effecting the same end by means of a skeleton screen fixed a short distance in front of the lens, by means of which pieces of opaque paper cut to proper shape and size cover up the high lights for part of the time. (See *The Photogram*, April 1897, p. 119.)

A fourth principle consists in taking advantage of the fact that the image is mainly on the front of the sensitive film, while the halation is on the back surface. If development can be confined to the upper layers of the film the halation will remain undeveloped. This is done by a preliminary soaking of the film in plain water to saturate the gelatine and delay the entrance of the developer; then a strong developer is applied to the surface for the minimum of time. If necessary the developer should be poured away and physical developer substituted. Painting the high lights with bromide during development also assists materially.

The fifth principle consists practically in temporarily abolishing the back surface of the glass plate so that no actinic reflection can take place therefrom. This is done by covering the back of the glass with a medium in optical contact, which has the same refractive index as the glass, and which is capable of absorbing all actinic light which reaches it.

This backing of the glass plate is the most generally useful principle, and is carried out in many ways.

The ideal backing should answer to the following conditions:—

1. It should be in optical contact.
2. It should have the same refractive index as the glass.
3. It should contain nothing injurious to the sensitive film.
4. It should not chip or scratch easily.
5. It should be easy of application and quick in drying.
6. It should be easy of removal.

The conditions are arranged in the order of their importance.

The following are some of the more useful varieties of backing, with observations on their special characteristics.

Cornu's mixture of oil of cloves, turpentine, and lampblack, can be adjusted exactly to the refractive index of the glass, and is theoretically perfect, but it does not dry, and therefore is not suitable outside the studio, and is somewhat messy in use.

Collodion mixed with some non-actinic color is good and dries quickly. Some people find a difficulty in removing this backing. My method, which has worked well enough, is to leave the backing alone until development is nearly complete, when I remove a portion of the backing with a small palette knife sufficient to judge density. After fixing, I remove the whole in the same way, which is easily done, as the backing is considerably softened: washing under the tap, *film upwards*, prevents any fragments lodging in the film.

Other quick-drying compositions are asphalt in chloroform, easily removed with benzine and a rag, or shellac varnish and lampblack, removed with a solution of sodic carbonate and a sponge.

Soap dissolved in alcohol with some non-actinic dye dries quickly, and is easily removed with water; but probably the refractive index is not quite as exact as it should be, and the dye may stain the fingers. A mixture of wax, oil, and lampblack applied warm is another variation which is sometimes used.

The flexible backing pads generally made of gelatine, glycerine, and lampblack, coated upon tough paper or cloth, are often recommended. With these the great difficulty is to get them into perfect optical contact; air bubbles are easily imprisoned, and as it is immpossible to see whether any air bubbles are enclosed or not, this method cannot be recommended to serious workers.

Before we leave the subject of preventing halation, let us notice one or two fallacious proposals. The first is, grinding the back surface of the glass with emery. Where the halation is caused by reflections from the back surface of the glass, it is quite evident that while ground glass modifies the distribution of the halation, it does not reduce its amount at all; the incident rays are simply scattered irregularly, instead of being reflected regularly.

* Owing to the engraver's absence, it has not been possible to reproduce the diagram—*Ed.*

Temples of Tadpatri 3 & 4. By MR. E. W. STONEY.

The other fallacious proposal is to expose the negative with the glass side towards the lens. The procedure actually aggravates the evil, as the reflections take place inside the glass just the same, with the important difference that in this case the rays which are reflected have not had to pass through the sensitive film at all, and not having suffered any absorption, will be much stronger than they are when exposing in the usual way.

A third plan for preventing halation is by exposing two sensitive plates, film to film, using the first merely as a screen, and giving a proportionately longer exposure so as to obtain the negative on the second plate. This is said to reduce halation, but I fail to understand why it should do so, and as it is an inconvenient plan for general use, it may be neglected.

We now come to the question:—How is halation to be cured when it already exists in the negative? The usual plan is to rub the face of the negative with the aid of alcohol. This is but a poor remedy and quite unscientific, if the halation is of the variety caused by reflection from the back of the glass plate. The image is on the front of the film and the halation is at the back, and rubbing the front merely reduces the image, and does not touch the halation. All that is accomplished by the rubbing is a reduction of the total opacity of the spot rubbed at the expense of the quality of the image. The proper course is to strip and reverse the film, when the rubbing can be done, and will affect the halation only, leaving the image intact.

The other remedy is to reduce the negative with chromic acid and bromide, and then to re-develop the image on the surface, stopping the action before the halation on the under side is reached; a bath of sodium thiosulphate then removes the halated part.

There has been some discussion lately as to the whether backing makes a plate slower or not. We have also the statement that backing does not make a plate slower, but renders it capable of enduring a longer exposure; and again, that emulsion coated upon paper is faster than the same emulsion coated upon glass. These statements are based on general experience, but it is much to be desired that some one with the requisite time and capacity would put the questions to the test by accurate experiments.

That emulsion on paper should be faster than on glass seems likely in the case of thin films, as any light escaping through the film may be reflected back, and re-inforce the image without dispersing to cause halation. If so, then probably the same emulsion on a polished metallic surface might be faster still owing to the reflecting power being greater.

As to a backed plate being slower than an unbacked one, this does not appear to me to be likely. Consider the case of an exposure made upon a film of average thickness; after development and before fixing we can see that only the high lights appear to penetrate to the glass; the details in the shadows where we first look for evidence of sufficiency of exposure are in the upper layers of the film, and the light which forms them does not appear to penetrate (as far as its actinic power is concerned) through the film at all, but is wholly absorbed. If, then, no actinic light gets through the film in the details of the shadows, how is it possible for backing to have any effect on the length of exposure requisite to produce them?

The last, and for general purposes much the best form of backing, is caramel, or a mixture of this with other things, usually burnt sienna, and a little gum; the solvent being water or methylated spirit and water.

The principal component, caramel, has nearly the same refractive index as glass, and is also strongly absorptive of actinic rays. The gum is used to give solidity to the backing. The burnt sienna (the kind which is ground in water) is used to assist in absorbing actinic rays, enabling a thinner film to be used. The spirit is used to facilitate drying, and as much can be used as will not precipitate the dissolved components. Sometimes a little golden syrup is useful to toughen the film when it is inclined to be brittle or dusty, but too much will prevent drying. The backing mixture is easily made up without any formula, by repeatedly testing it on a strip of plain glass, and adding more of such of the components as is seen to be necessary in small portions at a time, testing between each addition.

It is not a long affair to make the mixture, which should coat evenly with a brush, which, when dry, will stand rubbing with the finger tip without soiling it, and which will withstand a reasonable amount of scratching with the finger nail.

There are other ways of applying the backing, but the brush answers as well as anything.

As to the drying, if you have not a proper drying cupboard, an old case or box, made light tight with brown paper and glue, will be quite sufficient.

When about to use it, the box should be placed open before a fire for an hour or two to get thoroughly dry and warm. It is then taken into the dark room, and as the plates are backed they are placed in the box, leaning against the sides all round, wet side outwards. The box dries all sizes of plates within its capacity, and a dark cloth or two over the lid makes all safe. The drying will be complete in two or three hours,

The caramel itself may be made from sugar, or can be bought ready for photographic purposes.

The thickness of the caramel backing requires some attentions. For all ordinary work a thinnish coating is quite enough, but for difficult work, such as is often met with in interior photography, the coating must be much heavier, for the following reason.—When we plaint the back of the glass with caramel, *i. e.*, a substance having the same refractive index as glass, we virtually abolish for the time the reflecting surface of the glass, and substitute a reflecting surface of caramel. If the caramel were a transparant and colorless material, this course would be no improvement of the situation at all, but the caramel is absorptive of actinic rays; and provided we take care to increase the absorptive power in proportion to the requirements of the special case, we have accomplished the purpose intended. Clearly, then, if we have to deal with a very strong high light, we must have a thick coating of considerable actinic opacity, and we must be specially careful to have the refractive index of the caramel mixture in agreement with that of the glass as exactly as possible

Caramel backing is easily removed with a damp sponge before development.

For orthochromatic plate a fine black pigment is preferable to burnt sienna or any colored pigment.—*The Photogram.*

Reflected Skies in Landscapes.

BY F. GIBBONS.

MODERN photographic artists have given great attention to skies, and often with very considerable success, some pictures even depending almost exclusively on their sky effects for their merit. But one sometimes sees a

picture with good clouds and a good representation of an expanse of sky, which is all that can be desired, except that the sky is reflected in water and the reflection is all wrong, because the photographer has printed in the sky from his cloud negative, and the latter does not include the necessary reflection for the water which the picture contains. Perhaps he has reversed his cloud negative and printed it upside down, to obtain the reflection, thus giving wrong perspective and spoiling the effect of his otherwise successful picture.

I give here a method of obtaining a negative from a cloud photogram, which combines both the sky and its reflection on one plate, in true perspective as far as the photographer's requirements go. But it must be borne in mind that the water is to be considered as still,—ruffled water giving quite different reflections and distorting the perspective just in proportion to the amount of the ruffling. Of course, if there is only a little disturbance of surface, this would make no perceptible difference. It is also necessary to explain that the clouds and sky are to be considered as being in one vertical plane from the horizon upwards. This, however, presents no obstacle, as the camera ordinarily takes in but a small angle, and the sky is immensely distant compared with other objects.

We will suppose the photographer to have a suitable cloud negative which he desires to put into a picture in which there is water that reflects the sky. His first aim is to get a good print from it (see fig. 1, which is from a negative kindly lent to me by Hugh Price, of Stourbridge). He will next require a mirror which has but one reflecting surface. An ordinary mirror will not do, because it has the reflecting surface of the front face of the glass as well as the mercury coated back, and this would cause double reflection, which would entirely spoil the effect. The ideal mirror is, no doubt, a piece of plate-glass silvered on the face, but this is quite out of the reach of the average amateur photographer. I have used a piece of ordinary sheet tin, such as is sold by tinsmiths and used for making tea-kettles, etc. It gives a certain amount of distortion, owing to the surface not being flat, but this is no serious drawback with cloud reflections. The price should not be more than 5*d.* for a large sheet, and care should be taken that it is quite new and free from scratches: even rubbing it with a duster will take away some of its brilliancy of surface. The mirror, A, is placed on a table or other object, B (see fig. 2). On this, the photographer should place a cardboard box or other object, C, and pin or fasten to it with stamp paper his print, D. Next he should move his table till he gets it into a position where there is no flection on his print, and place his camera, E, directly in front, taking care that the lens occupies a suitable position above the mirror, just in proportion to the height at which the original view was taken above the water. If the photographer has a lens of much shorter focal length than his usual one—say "a quarter-plate" instead of a "whole-plate" lens—so much the better, for he will then be able to make his exposure much closer to the object, the best position being that in which the lens, F, is the same distance from the print, D, as the lens was from the focussing screen in taking the original picture. If the reflections are wanted sharp, a small stop will be necessary in making the exposure; but, generally speaking, this is not desirable.

On developing, a negative is obtained containing the sky and its reflection in true perspective, which can be printed into a picture by "masking out" all other parts except the sky and water in the usual manner. But care must be taken that the line of intersection between the sky and its reflection coincides with the horizontal line of the picture. (Fig. 3 shows a print from this negative.)

It is quite possible that better results might ensue, if a developing dish were covered over (bottom and sides) with black cloth soaked in water, and the dish filled up with that liquid. The use of this instead of the mirror for the reflections would probably approach the tone of nature more closely than does the mirror; for the latter allows very little light to be lost, whereas water absorbs a large amount, and consequently the reflections are not so brilliant. This, however, is a method I have not yet tried

Should it be necessary for the water to be lower in tone than the sky, I recommend that a polished Japan black surface be substituted for the mirror. This will give the effect of a dirty pool or other impure water.

Apropos of skies, the question may be asked whether photographic artists have not given too much attention to clouds, to the exclusion of the less striking, but often more beautiful sky effects, which the artist of the brush so frequently produces? The clear summer sky with its lovely gradation, from deep ultramarine at the zenith, to a faint, warm grey at the horizon, is perhaps better obtained by the photographer, from a piece of white card bent to an irregular curve (so that the lower part catches more light than the upper) than from nature, because of the non-actinic colours sometimes present in the sky. Frequently in the evening, if there is much mist when the sun is low, the part near the sun will be of a pale tint of greenish lemon yellow, darkening of in all directions into some shade of purplish grey. This effect, it seems to me, could be better obtained by judiciously shading a piece of white card, and from this obtaining a negative, than by risking an exposure on a sunset sky. Much also can be done in this direction by "sunning down" the print, if the light part is judiciously shaded by fixing a piece of cut-out cardboard some distance (sometimes a foot or more) in front.

A very good rule to observe in connection with the printing of clouds, is that their darkest parts should not be deeper than the darkest part of the extreme distance. If this rule be adhered to, there is not much fear that the sky will be out of tone when compared with the rest of the landscape.—*The Photogram.*

Lantern-slide making for beginners.

By Primrose Hill.

XIV.—TONING (OR COLOURING) SLIDES—*Contd.*

(86) We now pass on to a method which does not appear to have been previously published. This consists of a lead intensifying bath, followed by generous washing and the immersion in an iron solution. Prepare the following solution:—

A.—Lead nitrate	20 gr.
Water	1 oz.
B.—Potassium ferricyanide	30 gr.
Water...	1 oz.

Mix A and B. Add drop by drop nitric acid until the cloudy mixture clears again.

The slide is immersed in this until bleached. It is then well washed and then immersed in

Iron perchloride	5 gr.
Water	1 oz.

It now turns to a rich prussian blue.

Or instead of the perchloride we may use

Iron protosulphate	20 gr.
Water (cold)	1 oz.

This will give us a somewhat greener tinge.

There are yet some other variations of this process, but our experiments are not yet sufficiently decisive to enable us to recommend any further experiments for the beginner.

XV.—COVERS, VARNISH, MASKS, BINDERS.

(87). We may now consider that we have come to the end of the essentially photographic part of our slide making. It remains for us to prepare it for exhibition by means of the optical lantern.

At present our slide consists of an image in a gelatine film, supported on glass. This film is liable to damage in various ways, therefore, to serve as a measure of protection, it is customary to use a piece of plain glass as a "cover glass." Thus the film is sandwiched, as it were, between two pieces of glass.

(88). *Cover Glasses.*—Pieces of thin, clear glass, measuring $3\frac{1}{4}$ by $3\frac{1}{4}$, are sold by the stock dealers for this purpose, and known as "cover glasses." But the beginner will hardly need to buy these just at first, for he can use his failures in slide making for this purpose, after having cleaned from them all traces of the gelatine coating.

(89). *Cleaning Spoiled Plates for Cover Glasses.*—It is a curious thing that when one wants to get the film away from the glass it often seems to adhere more tenaciously than ever. There are several methods of getting rid of the gelatine, all good and useful in their way.

(*a*). If you see you have made a failure in exposing or developing a plate, do not throw it into the waste tube, but put it in the fixing bath as usual. Then, when the film is well soaked with the hypo solution, remove the plate, and, *without washing*, lay it flat down, face upwards, on a table, and let it dry just as it is. The gelatine, saturated with hypo, is in some way acted on, and when dry the film will probably show signs of parting from the glass at the corners Slip the point of a knife under the film and gently pull the film backwards. With a little care one can in this way remove the film in one entire piece. The glass now only requires washing with soap and warm water, and rinsing in clean cold water, and then, drying and polishing with a bit of old silk.

(*b*). Another method, good for slides that have been dried, is to put them in a dish of water containing a good dose of kitchen soda. Then transfer to another dish containing dilute hydrochloric acid—the commercial "spirits of salts" will due quite well. Its strength may be half an ounce of acid per pint. The second bath causes bubbles of gas to be formed in and below the film. A good stiff twopenny nail brush then helps the gelatine to part company with the glass.

(*c*). Another useful method is to prepare a strong and hot solution of washing soda The plates are first put in warm water, and then in the hot soda solution, and presently the nail brush applied.

(*d*). Some forms of gelatine, after pyro and other treatment, seem to become almost insoluble. In this case we must use more powerful means. The following mixture is admirable :—

Potassium bichromate	1 oz
Water (about)	20 oz.
Sulphuric acid (" oil of vitriol ")	$\frac{1}{4}$ oz.

First dissolve the bichromate in about a pint of water, then add the "oil of vitriol" slowly, and stir well. The addition of the acid evolves heat. This mixture is neither good for one's fingers or clothes, therefore due care must be exercised.

This mixture is useful as a glass cleaning fluid, and serves for cover glasses, bottles, measures, and porcelain developing dishes, etc.

(90) *Varnishing Slides.*—Some workers apply to the gelatine film a coat of varnish. Not only does this serve as a partial protection against scratches, but also against damp. Again, it is claimed that it gives transparency to the darker parts, shadows, of the picture. Crystal varnish for lantern slides can be bought ready for application. But in case the reader wishes to prepare his own varnish we give a few formulæ.

A.—Chloroform..................................	20 parts.
Amber	2 to 3 "

Amber chips can be bought from pipe makers at a moderate cost. To assist solution the larger pieces should be crushed to a rough powder. Place the bottle, well corked, in a fairly warm place and shake occasionally. When solution is complete, set aside for a week for any sediment to settle, and then carefully decant the quite clear part only for use into another bottle.

B.—Pyroxyline	3 to 5 gr.
Amyl acetate	1 oz.

This can be applied cold by means of a broad soft varnish brush.

C.—Gum dammar..............................	15 to 25 gr.
Benzole	1 oz.
D.—Copalresin	20 to 30 gr.
Bensole	1 oz.
E.—Gum mastic	20 gr.
Canada balsam (solid)	2 drams.
Bensole	1 oz.

Put the Canada balsam in an old saucer and slowly bake in a cool oven, until it is a brittle solid like common resin. This varnish also may be applied cold.

F.—Some workers use ordinary enamelling collodion as a varnish, and claim for it especial power of increasing transparency in the shadows.

(91). *Masks.*—A piece of opaque paper (often black) is cut of the same size as the slide, viz., $3\frac{1}{4}$ by $3\frac{1}{4}$ inches. In this paper an opening is cut. This piece of paper is inserted between the slide and cover glass, and covers up or masks the marginal parts of the slide, hence its name. Masks with openings of many forms and sizes, circular, oval, oblong, square, etc., are kept by the stock dealers, and the slide makers will find it convenient to have a number of different sizes and shapes at hand so that each slide may be fitted with a mask of suitable shape and size.

He must, however, go a step further than this, and be provided with pieces of opaque paper $\frac{3}{4}$ by $\frac{3}{4}$ from which he can cut openings for any special size and proportion. For if he is a person of artistic taste he will frequently require a size and shape of opening which is not to be found among the stock patterns.

But passing over this matter for the moment, we shall assume that a suitable mask has been found.—*The Amateur Photographer.*

(*To be continued.*)

COMPETITIONS.

(Open only to Members of the Society.)

SUBJECTS FOR MONTHLY COMPETITIONS.

October	A Group of Europeans.
November	A Group of 2 Figures.
December	Festivity.

RULES.

1. *Two Special Competitions shall be held, in each year, in addition to a monthly competition.*

2. *The Committee shall select the subjects for the Special Competitions, and notice of the selected subjects shall be announced in the Society's Journal in February and in July of each year. The subject for each monthly competition shall be selected two months in advance by the members present at the monthly meeting, and shall be notified in the next issue of the Society's Journal.*

3. *Pictures, &c., competing for Prizes at the Special Competitions must reach the Secretary by the last day of January and of May, and those competing at the monthly competitions must arrive in time to be shown at the monthly meeting.*

4. *Prizes will consist of Silver and of Bronze Medals, and of Certificates of Merit.*

5. *Not more than one Silver and one Bronze Medal shall be given at each Special Competition, and one Silver and one Bronze Medal may also be given at these competitions for excellence in copying, enlarging, lantern slides, or any other special branch of photography. One Silver and one Bronze Medal shall be awarded half-yearly to the exhibitors who obtain the highest and the next highest marks respectively at the monthly competitions. The number of Certificates of Merit granted at each competition is left to the discretion of the Judges.*

6. *A member may receive only one Silver and one Bronze Medal in the special, and one Silver and one Bronze Medal in the monthly, competitions, held during the same year; but should a member who has been adjudged a medal be disqualified under this rule from receiving it, he shall be given a Special Certificate instead, marked 1st or 2nd Prize.*

7. *A Special Committee of three members shall be appointed Judges by the General Committee to carry out, subject to these Rules, all arrangements connected with the competitions.*

8. *The Special Committee shall be appointed after the Annual General Meeting in January, and shall hold office for one year, and any vacancy occurring will be filled up by the General Committee.*

9. *The Special Committee shall decide upon the merits of the pictures, &c., sent in for competition, and their decision shall be final. The system of judging the monthly exhibits shall be by awarding marks, a record of which shall be kept by the Judges, the marks being totalled and the results declared half-yearly. For this purpose, only the three highest marks awarded at each competition to each competitor shall be recorded, but not the aggregate marks gained by each for a number of exhibits.*

10. *If any member of the Special Committee is a competitor, the General Committee shall appoint a non-competing member to act as Judge at that competition instead of the competing member.*

11. *No exhibit shall compete twice, but pictures, &c., already exhibited elsewhere, may be sent in for the competitions.*

12. *Lantern slides sent in for competition shall be in sets of six, and shall be judged upon the screen.*

13. *The Special Committee shall not award any Prizes or Certificates, unless they consider the exhibits to be worthy of such distinction.*

14. *Each competing exhibit shall be the entire work of the exhibitor, and when sent in shall be accompanied by a Certificate in the annexed form:—*

> *"The (1) Arranging, (2) Exposing, (3) Developing, (4) Retouching (if any), (5) Printing and (6) Trimming and Mounting were done by me without assistance."*
>
> ____________________
>
> *Member, A. P. Socy. of Madras.*

15. *All pictures for the Special Competitions shall be mounted, and may, at the competitor's option, be framed but not glazed. Those for the monthly competitions need not be mounted, but should be trimmed.*

16. *Each competing picture should have a name or title, which should indicate the nature of the subject.*

17. *No competitor shall be allowed to send in more than six pictures to compete for any particular Prize, but the same member may compete in all branches specified in Rule 5.*

18. *The pictures gaining 1st and 2nd Prizes at the half-yearly competitions, and the best pictures sent for the monthly competitions, shall, when practicable, be reproduced in the Society's Journal.*

19. *To give up-country members an opportunity of seeing the competing pictures at the special competitions, the pictures shall be circulated to all members of the Society, not residing in Madras, who apply to see them. As this arrangement can only be carried out by the cordial co-operation of the members themselves, they are expected to forward the pictures without delay to the next member, and to send one of the accompanying post-cards to the Secretary, so that by this means the progress of the pictures may be traced.*

List of Members whose Dark Rooms are available for use by Members of the Madras Amateur Photographic Society.

E. MAENNIG, Buckingham House, Tranquebar.

FOR SALE.

A complete and new TELE-PHOTO LENS, by J. H. Dallmeyer, consisting of—

1 No. IB Patent Portrait Lens, Iris diaphragms, with high and medium power attachments. Price in London £ 14-10-0.

1 Brass Dust Cap, 1 Solid leather velvet lined Sling Case to take the entire instrument, and 1 extra flange, £ 1; Morocco leather case for 1 attachment, £1-0-0.

1 Burchett No. 2 Color Screen, in morocco leather case, £ -17-0.

1. Th.-Pick.'s Alum: T. I. Shutter, Speed indicator, Time valve, and adapting ring, £1-9-6.

This splendid instrument is only imported this month, but has to be offered for sale as it is too heavy and too big for the owner's half-plate "Ruby" Camera. Reasonable offer will be accepted. Apply to,

H. H. THE KUMAR RAJAH OF BOBBILI,

BOBBILI,

Vizagapatam District.

NOTICES.

Members of the Madras Amateur Photographic Society are permitted to use this column free of charge for two insertions of each advertisement—all subsequent insertions of the same being chargeable at 2 annas a line. When an advertisement becomes liable to this charge, it will not be inserted unless a postal order or stamps to the value of the charge are previously sent, addressed to Graves, Cookson and Co., Scottish Press, Broadway, Madras. Advertisements received up to the 5th of each month will be inserted in the next issue of the Journal; those received after this date will be held over for the subsequent issue.

Subscribers, and others who are not regular dealers may make use of this column for advertisements by paying at the rate of 3 annas a line.

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N.B.—The Journal is issued on the 15th of each month, and is posted free to members of the Madras Amateur Photographic Society.

Entrance Fee, Rs. 5.—Annual Subscription *for Resident Members, Rs. 15; for Up-country Members, Rs. 12. Members joining after 30th June pay Half-year's Subscription.*

Candidates for Election—*should be proposed by one member and seconded by another; and they will be ballotted for at the following meeting.*

Ordinary Meetings—*of the Society are held on the first Friday of each month at 6 p.m. and members are at liberty to introduce visitors: meetings take place at the Museum, Egmore.*

Letters to the Editor—*should be addressed care of Messrs. Graves, Cookson & Co., Scottish Press, Broadway, Madras.*

Letters to the Honorary Secretary—*should be addressed to Mrs. Leet Palk, Locock's Garden, Kilpauk, Madras.*

Letters to the Honorary Treasurer—*should be addressed to A. E. Lawson, Madras Mail Office, Madras.*

Communications regarding the issue of the Journal—*should be addressed to the Publishers, as above.*

1. A Madras Banyan Tree and Garden. By Mr. E. W. STONEY.